

## California Rapid Assessment Method for Wetlands and Riparian Areas

(CRAM)

### Approach for Project Assessments




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### (at this time) a Project is...

- Any activity authorized under Section 404 of the US Clean Water Act, under the State's 401 Certification/WDR Programs, or under Section 1600 of DFG Code that directly changes the extent, type, or condition of wetlands.
- Activities under other programs can be included in the future.

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### Key Definitions

- Sample Universe  
A map of all the wetlands of one type within a given area
- Sample Frame  
A map of all the candidate AAs within the sample universe

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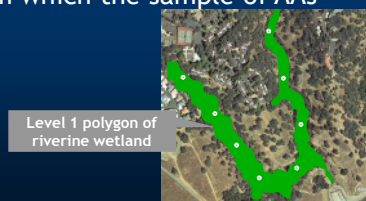
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*For ambient assessments of a wetland class:*

The sample universe is the Level 1 map of the wetland class in a watershed or other landscape based on CARL standards.

The sample frame is all candidate AAs within the universe from which the sample of AAs will be drawn.




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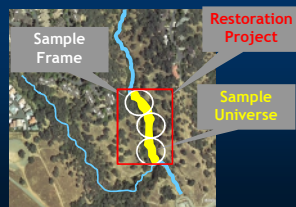
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*For project assessments:*

The sample universe is all of the wetlands of one type within the project boundary.

The sample frame is all candidate AAs within the universe from which the sample of AAs will be drawn.




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## Choosing Project AAs

**Step 1: Identify the Project Area**

The project might include upland areas and other non-wetland areas.




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## Choosing Project AAs

### Step 2: Identify the Sample Universe

A Sample Universe is the footprint of a wetland type within the Project.

There is one Universe per wetland class.




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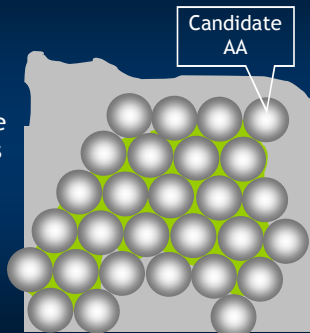
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## Choosing Project AAs

### Step 3: Develop the draft Sample Frame

The draft Sample Frame denotes all possible AAs based on the preferred AA dimensions




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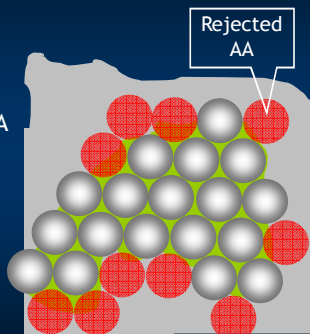
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## Choosing Project AAs

### Step 4: Reject incomplete AAs

Reject any candidate AA that is not at least 80% within the Sample Universe.




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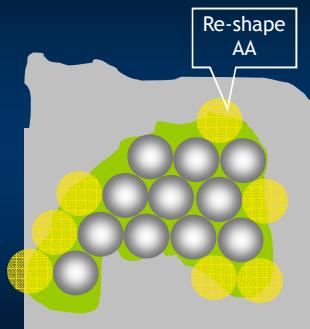
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## Choosing Project AAs

### Step 5: Re-shape edge AAs

If at least 20% of any remaining candidate AA is outside the Sample Universe, re-shape the AA so that it fits entirely within the Sample Universe.




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## Choosing Project AAs

### Step 6: Complete the assessment for small sample frames.

If the Sample Frame has 1-3 candidate AAs, assess them all and upload the data to the statewide CRAM database.

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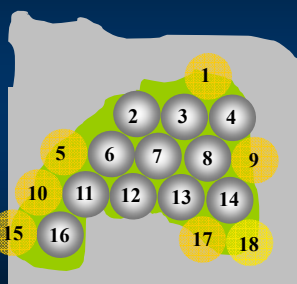
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## Choosing Project AAs

### Step 7: Complete the assessment for large Sample Frames (>3 AAs).

Randomly select 3 AAs. Average the two most similar AA scores; if the 3<sup>rd</sup> AA score differs from the average score of the first two AAs by more than 10 points, select a 4<sup>th</sup> AA. Continue until latest AA score agrees with average of all the previous AA scores, and upload scores.




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### Example sample frame




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### Comparing Ambient and Project Assessment Approaches

- Both approaches require mapping the Sample Universe, defining the Sample Frame, and drawing a sample from the Sample Frame.
- The *ambient* Universe is all the wetlands *in a watershed or other landscape* to which the assessment results are expected to pertain.
- The *project* Universe is all the wetlands *in a project* to which the assessment results are expected to pertain.

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### Comparing Ambient and Project Assessment Approaches

- The *ambient* Sample Frame consists of all the candidate AAs within an ambient universe.
- The *project* Sample Frame consists of all the candidate AAs within the project universe.

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## Comparing Ambient and Project Assessment Approaches

- The *ambient* sample draw has a fixed sample size; the draw accounts for the different inclusion probabilities of the AAs, which depend on the sizes of their encompassing wetlands.
- The *project* sample draw requires all AAs to have the same inclusion probability; sample size is not fixed, but depends on the variability in wetland condition throughout the project.

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